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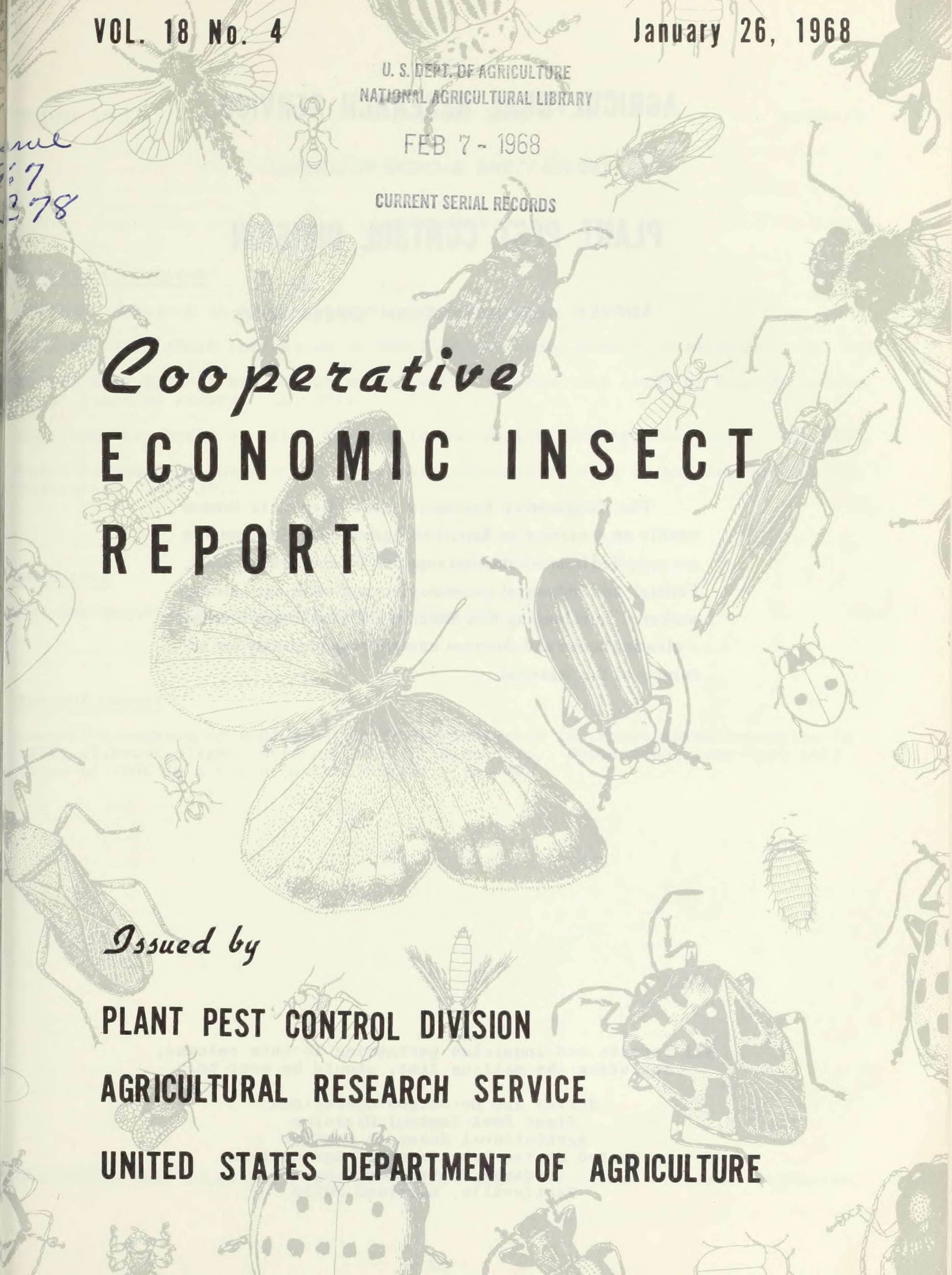

Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

All reports and inquiries pertaining to this release,
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Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

Volume 18 January 26, 1968 Number 4

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

GREENBUG damaging in Rolling Plains area of Texas. (p. 35).

ENGLISH GRAIN APHID increasing in wheat in Oktibbeha County, Mississippi. (p. 35).

CITRUS RUST MITE at highest December level on leaves and fruit of Florida citrus in 16 years of record. (p. 36).

EAR TICK very heavy on dairy animals in San Joaquin County, California. (p. 39).

WHITE GARDEN SNAIL undetected for eighth consecutive week in Los Angeles County, California. (p. 39).

Detection

For new county and island records see page 40.

Special Report

General abundance of EUROPEAN CORN BORER decreased in those States reporting in 1967, although slight increase noted in Wisconsin. Populations less than half those of 1966 in 6 North Central States. (p. 42).

Reports in this issue are for week ending January 19 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance....35

Insects Affecting

Small Grains....35
Turf, Pastures, Rangeland....35
Forage Legumes....35
Cole Crops....36
General Vegetables....36
Diciduous Fruits and Nuts....36
Citrus....36
Other Trop. & Subtrop. Fruits....37
Ornamentals....37
Forest and Shade Trees....37
Man and Animals....38
Miscellaneous Wild Plants....39
Stored Products....39

Beneficial Insects....39
Federal and State Plant Protection Programs....39
Insect Detection....40
Light Trap Collections....40
Corrections....40
Hawaii Insect Report....40
Status of the European Corn Borer in 1967....42

WEATHER BUREAU'S 30-DAY OUTLOOK

MID-JANUARY TO MID-FEBRUARY

The Weather Bureau's 30-day outlook is for temperatures to average below seasonal normals in the gulf and south Alantic coast regions and also in the southern Rockies and northern New England. Above normal temperatures are anticipated for the West Coast States, the northern Rockies, and from the northern and central Plains to the Upper Great Lakes. Elsewhere near normal temperatures are in prospect. Precipitation is expected to exceed normal in the South as well as over the southern Plains and the Pacific Northwest. Subnormal totals are indicated from the northern Mississippi Valley eastward through the Great Lakes Region to the Appalachians. Elsewhere near normal precipitation is in prospect.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price $5.00 a year.

For Weather of the Week see page 41.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

BEET LEAFHOPPER (*Circulifer tenellus*) - CALIFORNIA - Decreased from 5 to 3 in 10 sweeps in western San Joaquin and Stanislaus Counties due to dry weather. Controllable numbers found near Oil King School and south of Jacalitos Canyon, Fresno County, and in Kettleman Hills, Kings County; controls not applied in other parts of Kettleman Hills, Dudley, and Pyramid Hill areas due to leafhopper scattering. (Cal. Coop. Rpt.).

GREENBUG (*Schizaphis graminum*) - NEW MEXICO - Ranged 10-20 per linear foot in wheat around Portales, Roosevelt County, and 40-50 per linear foot on wheat at Clovis, Curry County. (Mathews). TEXAS - Heaviest in Cottle, King, Dickens, Motley, and Stonewall Counties of north-central area; present in Childress, Kent, Wichita, Young, Foard, and Hardeman Counties; activity decreasing. Some activity on dryland wheat in panhandle area. (Almand et al., Jan. 12). Damaging in Rolling Plains area; activity increasing in counties near Lubbock. (Texas Coop. Rpt.). OKLAHOMA - Ranged 30-40 per linear foot in wheat in Jackson and Stephens Counties; 20-50 per linear foot in Harmon County; 5-15 per linear foot in Canadian, Blaine, Dewey, Woodward, Alfalfa, Major, Woods, and Garfield Counties. (Okla. Coop. Sur.). ARKANSAS - Occasional aphid found in Washington County wheat. (Boyer). KANSAS - Averaged less than one per 10 row feet in Sedgwick, Sumner, and Harper Counties. (Simpson). Found below soil surface in crowns of fall-seeded wheat in southwest area; dead aphids on exposed leaves. (DePew).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - KANSAS - None found on alfalfa checked in Sedgwick, Sumner, and Harper Counties. (Simpson).

SMALL GRAINS

ENGLISH GRAIN APHID (*Macrosiphum avenae*) - MISSISSIPPI - Increasing in Oktibbeha County wheat; moderate in 4 fields. (Dinkins).

WINTER GRAIN MITE (*Penthaleus major*) - OKLAHOMA - Averaged 35 per linear foot in Stephens County and up to 50-60 per linear foot in Jackson County wheat. (Okla. Coop. Sur.). TEXAS - Activity decreasing in north-central area due to dry, cold weather. (Almand et al., Jan. 12).

TURF, PASTURES, RANGELAND

RHODES-GRASS SCALE (*Antonina graminis*) - ARIZONA - Moderate in crowns of Bermuda grass on many properties in Phoenix, Maricopa County. (Ariz. Coop. Sur.).

APHIDS (*Aphis* spp.) - ARIZONA - Heavy in spots in Bermuda grass seed fields at Yuma Valley, Yuma County. (Ariz. Coop. Sur.).

A BILLBUG (*Sphenophorus phoeniciensis*) - ARIZONA - Adults light in uprooted Bermuda grass sod at Phoenix, Maricopa County. (Ariz. Coop. Sur.).

FORAGE LEGUMES

PEA APHID (*Acyrthosiphon pisum*) - KANSAS - Ranged 20-25 per square foot in 2 alfalfa fields in Sumner County. (Simpson). ARKANSAS - Survey negative in alfalfa and vetch in Washington County. (Boyer).

ALFALFA WEEVILS (*Hypera* spp.) - MISSISSIPPI - *H. postica* adults per 10 square feet and eggs and larvae per 20 stems in new and 7-year-old stands, respectively, in Pontotoc County: Adults 12 and 15; larvae 45 and 25; eggs 10 and 3. (Pitre). ARIZONA - *H. brunneipennis* young larvae found in 35 percent of alfalfa plant terminals at Yuma, Yuma County. (Ariz. Coop. Sur.).

CLOVER SEED WEEVIL (Miccotrogus picirostris) - MISSOURI - Collected in red clover at Valley Park, St. Louis County, July 13, 1967, by R. E. Munson and L. R. Hanning. Det. by W. S. Craig. This is a new county record and most southern collection to date. (Munson).

COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Young larvae light in most Maricopa County broccoli. (Ariz. Coop. Sur.).

DIAMONDBACK MOTH (Plutella xylostella) - TEXAS - Feeding on collards in Klein, Harris County. (Kay, Portie).

GENERAL VEGETABLES

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Moderate in carrot foliage in northwest Phoenix area of Maricopa County; controls necessary in Yuma County. (Ariz. Coop. Sur.).

DECIDUOUS FRUITS AND NUTS

PEACH TREE BORER (Sanninoidea exitiosa) - ALABAMA - Larvae feeding at and below ground line on peach trees in central area during warm weather; excessive sap residue on damaged trees. (McQueen, Jan. 12).

LESSER PEACH TREE BORER (Synanthedon pictipes) - ALABAMA - Larvae feeding on many peach trees in central area; gum residue evident. (McQueen, Jan. 12).

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Larvae numerous in old pecan shucks under all pecan trees examined in small orchards and around homes in southern and central areas; no pupation. (McQueen, Jan. 12).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - ALABAMA - Heavy in two 4-year-old peach orchards in Geneva County; 2 control treatments applied. (Bagby, Reynolds).

A SEED CHALCID (Megastigmus pistaciae) - CALIFORNIA - Larvae moderate in harvested Pistacia vera var. kerman nuts in Plant Introduction Gardens in Chico, Butte County; navel orangeworm infesting few kernels. (Cal. Coop. Rpt.).

CITRUS

Citrus Insect Situation in Florida - End of December - CITRUS RUST MITE (Phyllocoptruta oleivora) infested leaves in 85 percent of groves (norm 58 percent); 68 percent economic (norm 39 percent). Infested fruit in 79 percent of groves (norm 52 percent); 65 percent economic (norm 33 percent). An unusual December increase occurred which will continue into January. Population on both leaves and fruit was highest for December in 16 years of record. It was also near alltime high record of July 1957 and may exceed it next month. All districts high. TEXAS CITRUS MITE (Eutetranychus banksi) infested 50 percent of groves (norm 38 percent); 17 percent economic (norm 14 percent). Population increased above normal December level but is still in moderate range. Further increase expected and most districts will develop some heavy infestations. Highest districts west, south, and north. CITRUS RED MITE (Panonychus citri) infested 38 percent of groves (norm 36 percent); 18 economic (norm 13 percent). Population will continue to increase but will remain near normal and in low to moderate range. Heavy infestations will occur in scattered groves. Highest districts west and east. GLOVER SCALE (Lepidosaphes gloverii) infested 72 percent of groves; 9 percent economic. Population below average and in moderate range; slight increase expected. Highest districts east, west, and south. PURPLE SCALE (L. beckii) infested 65 percent of groves; 3 percent economic. Population below normal and in low range. Increase expected but few infestations will be important. Highest district east. YELLOW SCALE (Aonidiella citrina) infested 68 percent of groves; 4 percent economic. Population near normal and moderate; slight increase expected. Highest district east. BLACK SCALE (Saissetia oleae) infested 50 percent of groves; 18 percent economic. Mild weather favored increase to above normal level. However, population still low and very few infestations important. Highest districts central and east. CHAFF SCALE (Parlatoria pergandii) infested 42 percent of groves; 2 percent economic. Population will continue below normal and in low range in all districts. AN ARMORED SCALE (Unaspis citri) infested 14 percent of groves; 4 percent moderate to heavy. Further increase and spread expected. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

ARMORED SCALES - FLORIDA - Lepidosaphes gloverii infesting 52,000 of 65,000 nursery trees at Clermont, Lake County, January 11. (Henderson). ARIZONA - Aonidiella aurantii infesting 21 spots on homeowner's property in central Phoenix area, Maricopa County. (Ariz. Coop. Sur.).

GREEN SCALE (Coccus viridis) - FLORIDA - Moderate to severe on all 180 sweet orange trees at location in Rockledge, Brevard County, December 21. (Levan, Holley). Trees placed under temporary quarantine. (Fla. Coop. Sur.).

OTHER TROP. & SUBTROP. FRUITS

A SAP BEETLE (Carpophilus humeralis) - CALIFORNIA - Larvae light on pomegranate fruit in Coachella, Riverside County. (Cal. Coop. Rpt.).

ORNAMENTALS

HEMISPHERICAL SCALE (Saissetia coffeae) - FLORIDA - All stages severe on 3,000 coontie plants, Zamia floridana, at Tampa, Hillsborough County, January 10. (Hale).

A CONIFER APHID (Cinara tujafilina) - ALABAMA - Moderate to heavy on several 4 to 6-foot arborvitae plantings; honeydew heavy. (McQueen).

FOREST AND SHADE TREES

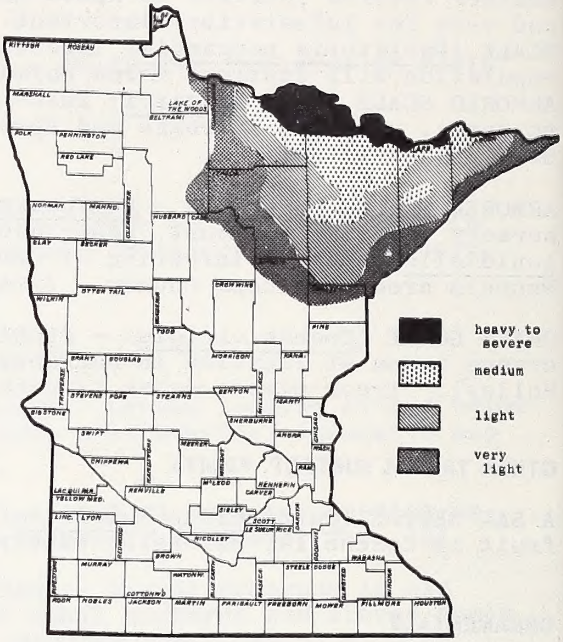
BARK BEETLES - ALABAMA - Dendroctonus terebrans adults and larvae inactive, 1-10 per tree, under bark of twenty 10 to 25-year-old loblolly and shortleaf pines at Lee County home. (McQueen, Jan. 12). TEXAS - Total of 330 D. terebrans-infested trees treated in Davy Crockett and Angelina National Forests October through December. D. frontalis decreased to negligible level October through December. Total of 31 multiple-tree spots found over 4.5 million acres during detection flights in October. Total of 66 infestations involving 4,531 trees controlled by mid-November. D. brevicomis light in ponderosa pine stands in western area October through December. Ips avulsus, I. grandicollis, and I. calligraphus activity continued heavy October through December. Losses heaviest in southeastern area; up to 25 percent tree mortality in localized areas. (Ollieu).

DEODAR WEEVIL (Pissodes nemorensis) - TEXAS - Adults damaged young loblolly and shortleaf pines in Angelina, Jasper, Tyler, and San Augustine Counties October through December; about 50 percent of reproduction in 100-acre block killed in San Augustine County. (Ollieu).

AN OLETHREUTID MOTH (Laspeyresia cupressana) - CALIFORNIA - Larvae moderate in Italian cypress cones in nursery stock in Menlo Park, San Mateo County. (Cal. Coop. Rpt.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - MINNESOTA - The movement of this pest has been in a south to southeasterly direction. The current infestation is centered on the Iron Range area of Hibbing, Virginia, and Eveleth. The 1968 defoliation prediction shown on the accompanying map was based on the observed defoliation and larval reports during the summer, and the egg mass survey made during October and November of 1967. (Minn. Ins. Rpt.).

Forest Tent Caterpillar Defoliation
Prediction in Minnesota - 1967



BUCK MOTH (Hemileuca maia) - FLORIDA - Flight heavy in Withlacoochee State Forest in Citrus County January 4; numerous on turkey oak due to warm weather. (Chellman).

MAN AND ANIMALS

MOSQUITOES - LOUISIANA - Larvae collected in Jefferson Parish January 9-15: Aedes vexans, Culiseta inornata, Culex salinarius, Anopheles quadrimaculatus, and Aedes sollicitans; light trap collections decreased due to cold weather. (Stokes).

SCREW-WORM (Cochliomyia hominivorax) - No cases reported in U.S. January 14-20, 1968. Total of 66 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Territorio sur de Baja California 20, Sonora 5, Chihuahua 8, Coahuila 7, Nuevo Leon 3, Tamaulipas 23. Total of 10 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operations underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 18,168,000, Mexico 104,362,000. (Anim. Health Div.).

CATTLE GRUBS (Hypoderma spp.) - ARIZONA - Light on backs of many cattle in Yavapai and Mohave Counties. (Ariz. Coop. Sur.). OKLAHOMA - H. lineatum averaged less than 1 per head on 60 treated cattle in packing plant in Oklahoma County and 3 per head on 3 cows in Payne County; ranged 60-80 per head on untreated cattle in Woods County. (Okla. Coop. Sur.).

CATTLE LICE - OKLAHOMA - Moderate on Cherokee County cattle. (Okla. Coop. Sur.). ALABAMA - Annoying several beef herds in Lowndes County; treatment needed. (Mathews). IOWA - Bovicola bovis light on 3 of 9 cattle at locker plant in Granger, Dallas County; moderate on 2 of 4 head at a Missouri Valley slaughterhouse in Harrison County. Haematopinus eurysternus moderate on 2 of 23 cattle checked in Dallas and Harrison Counties. (Iowa Ins. Sur.).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Light on swine in Muskogee, Adair, and Delaware Counties. (Okla. Coop. Sur.).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - ARKANSAS - Collected on poultry in Pike County by J. E. Roberts. This is new county record. (Boyer).

TROPICAL RAT MITE (*Ornithonyssus bacoti*) - MARYLAND - Biting humans in apartment house in Havre de Grace, Harford County. (U. Md., Ent. Dept.).

EAR TICK (*Otobius megnini*) - CALIFORNIA - Very heavy on 400 dairy animals in Tracy, San Joaquin County; treatments begun. (Cal. Coop. Rpt.).

BROWN DOG TICK (*Rhipicephalus sanguineus*) - MARYLAND - Infesting dogs and homes in Baltimore and Silver Spring, Montgomery County. (U. Md., Ent. Dept.). ARIZONA - Active in many backyards of Phoenix area, Maricopa County; control information requested. (Ariz. Coop. Sur.).

SCYTODID SPIDERS (*Loxosceles* spp.) - ALABAMA - *L. reclusa* collected in several Fayette County homes since initial find November 23. (Pitts). CALIFORNIA - *L. unicolor* collected under trash in abandoned building in Vidal Junction, San Bernardino County, January 12. (Smith, Vector Cont.).

BLACK WIDOW SPIDER (*Latrodectus mactans*) - ARIZONA - Present in storage sheds and unused facilities in Phoenix area, Maricopa County. (Ariz. Coop. Sur.).

MISCELLANEOUS WILD PLANTS

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - ARIZONA - Heavy on little mallow, *Malva parviflora*, bordering tilled and untilled fields in Maricopa County. (Ariz. Coop. Sur.).

BROWN GARDEN SNAIL (*Helix aspersa*) - CALIFORNIA - Moderate in weeds and grass in Manhattan Beach, Los Angeles County. (Cal. Coop. Rpt.).

STORED PRODUCTS

ALMOND MOTH (*Cadra cautella*) - CALIFORNIA - Heavy in Carpenteria, Santa Barbara County, and in residence in Rialto, San Bernardino County. (Cal. Coop. Rpt.). ALABAMA - Heavy in stored peanuts at home in Lee County. (McQueen, Jan. 12).

A DERMESTID BEETLE (*Trogroderma parabile*) - CALIFORNIA - Larvae moderate in barley and lettuce seed in seed house in El Centro and grain warehouse in Imperial, Imperial County. (Cal. Coop. Rpt.).

BENEFICIAL INSECTS

A DAMSEL BUG (*Nabis ferus*) - ARIZONA - Averaged 15 per 100 sweeps on alfalfa and 20 per 100 sweeps on sugarbeets in Pinal County. (Ariz. Coop. Sur.).

GREEN LACEWINGS (*Chrysopa* spp.) - ARIZONA - Averaged 50 per 100 sweeps on Pinal County sugarbeets. (Ariz. Coop. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CITRUS WHITEFLY (*Dialeurodes citri*) - CALIFORNIA - Total of 8 blocks infested of 51 blocks inspected in Sacramento area, Sacramento County; no new finds in Fresno district, Fresno County; controls restricted due to poor weather. (Cal. Coop. Rpt.).

WHITE GARDEN SNAIL (*Theba pisana*) - CALIFORNIA - First application of poison bait 70 percent complete in Manhattan Beach project area, Los Angeles County; no live snails found for eighth consecutive week. (Cal. Coop. Rpt.).

HAWAII INSECT REPORT

Vegetables - GREEN PEACH APHID (*Myzus persicae*) moderate to heavy, 20-40 per leaf, on bell pepper in Hauula and Kahuku, Oahu. (Sato). CABBAGE APHID (*Brevicoryne brassicae*) light on cauliflower in Pulehu and in backyard cabbage plantings in Makawao and Kahului, Maui. (Miyahira). CARMINE SPIDER MITE (*Tetranychus telarius*) moderate to heavy on snap beans in Waianae, Oahu; light to moderate on snap beans in Waimanalo. (Yamamoto, Funasaki).

Fruits - MANGO FLOWER BEETLE (*Protaetia fusca*) adults light on flowering mango trees in Kahului, Maui, and Waimanalo, Oahu; expected to be common on mango blossoms next few months. (Funasaki, Miyahira).

Ornamentals - AN APHID (*Cupressobium maui*) moderate on Mexican cypress, *Cupressus lusitanica*, September 11, 1967, in Hilo, Hawaii Island, for new host and island records. Only previous record for this species was on Japanese cedar, *Cryptomeria japonica*, on Maui in 1964. (Yamayoshi).

Beneficial Insects - Adults of a REDUVIID BUG (*Polididus armatissimus*) taken at light in Lihue, Kauai, November 15, 1967, for new island record. Previously found only on Hawaii and Oahu Islands. (Bianchi).

Miscellaneous Pests - LIVERFLUKE SNAIL (*Lymnaea ollula*) moderate to heavy in taro patches at Keanae and Waihee, Maui. A predacious SCIOMYZID FLY, *Sepedon macropus*, light in area. (Miyahira).

INSECT DETECTION

New County and Island Records

CLOVER SEED WEEVIL (*Miccotrogus picirostris*) - MISSOURI - St. Louis County. (p. 36).

NORTHERN FOWL MITE (*Ornithonyssus sylviarum*) - ARKANSAS - Pike County. (p. 39).

AN APHID (*Cupressobium maui*) - HAWAII - Hawaii Island. (p. 40).

A REDUVIID BUG (*Polididus armatissimus*) - HAWAII - Kauai Island. (p. 40).

CORRECTIONS

CEIR 18(2):16 - An ICHNEUMON WASP (Mesoleius tenthredinus) - WEST VIRGINIA - Change Barstow to Bartow for both notes on page 16.

CEIR 17(48):1035 - A CHIGGER MITE (Neotrombicula cavicola) should read (Neotrombicula *dinehartae*). (Cal. Coop. Rpt.).

LIGHT TRAP COLLECTIONS

FLORIDA - Sanford - 1/8-11, BL - Black cutworm (*Agrotis ipsilon*) 3, cabbage looper (*Trichoplusia ni*) 5, fall armyworm (*Spodoptera frugiperda*) 2, granulate cutworm (*Feltia subterranea*) 27, tobacco budworm (*Heliothis virescens*) 1, yellow-striped armyworm (*Prodenia ornithogalli*) 2. TEXAS - Brownsville - 1/6-12, 2 BL, 32-60°F., precip. 0.34 in. - Armyworm (*Pseudaletia unipuncta*) 336, black cutworm 407, cabbage looper 18, fall armyworm 3, granulate cutworm 55, salt-marsh caterpillar (*Estigmene acrea*) 115, tobacco budworm 4, variegated cutworm (*Peridroma saucia*) 64, yellow-striped armyworm 144.

WEATHER OF THE WEEK ENDING JANUARY 22

HIGHLIGHTS: A warming trend brought unseasonably mild temperatures. Heavy rains soaked the northern Pacific coast and parts of Texas.

PRECIPITATION: Rain fell almost every day along the northern Pacific coast. Weekly totals ranged from over 12 inches on the Olympic Peninsula to 2 inches along the coast of northern California. Daily totals of 4 to 8 inches on the Olympic Peninsula and the western slope of the Cascades sent the rivers to near or above flood stage by end of week. Heavy rains beginning Thursday over northern, central, and south-central Texas swelled the rivers producing the worst floods since September 1967 when Hurricane Beulah moved inland near Brownsville. Weekly totals below San Antonio exceeded 10 inches. Several persons drowned and damage was preliminarily estimated at $3 million. Clear skies prevailed from southern California and Arizona to the northern Great Plains and the Great Lakes and from the lower Mississippi River Valley to the Atlantic coast. These areas received no precipitation or only light sprinkles or snow flurries. Much of snow in the northern Great Plains disappeared during the week. Light rain or snow fell over the northern Rockies, the upper Ohio River Valley, and the Northeast.

TEMPERATURE: The week began cold. A warming trend over most of the Nation ended a cold spell that had persisted for several weeks. Much of the northern and central Great Plains averaged 10° to 20° above normal. The warming trend over the East-central and Southeast began about midweek and continued through weekend. The temperature climbed to 65° at Richmond, Virginia, on Sunday. The nights continued cool over the Southeast with subfreezing early morning temperatures common in Georgia and the Carolinas through the entire week. In spite of warm afternoons late in week, the East-central and Southeast averaged a few degrees cooler than normal. A large snow-covered area in the southern Rockies averaged much colder than normal. This area warmed little during the daytime and temperatures dropped to near or below zero at night. Winslow, Arizona, averaged 21° cooler than normal. (Summary supplied by Environmental Data Service, ESSA.)

Weather continued from page 34.

Status of the European Corn Borer in 1967[1/]

Introduction: Cooperating agencies in 16 States reported on surveys conducted in their States to determine the abundance of European corn borer (Ostrinia nubilalis (Hübner)) in 1967. All survey data, summaries, or records of field observations were submitted to Survey and Detection Operations in Hyattsville, Maryland, for final processing. Personnel of Entomology Research Division, Agricultural Research Service, kindly reviewed the material after completion.

The 1967 European corn borer survey was conducted during the late summer and fall. The survey is designed to measure the fall populations of European corn borer larvae and is conducted during a favorable time to include a high percentage of late instars, wherever possible. In all cases, except for some minor differences in compiling data, the accepted survey methods were followed. The survey was continued on a district basis whenever possible in 1967. A district is usually a group of counties within a State, in most cases based on Crop Reporting Districts.

In 1966, several of the States reduced the number of districts and/or the number of counties within districts. This change was followed during the 1967 survey. These changes were indicated in Tables 1 and 2 as footnotes in CEIR 17(4):46-52, 1967.

New Distribution: European corn borer was reported for the first time from only 2 counties during 1967 according to ARS records. These counties, Burke and Divide, are in the northwest corner of North Dakota. The pest has now been reported from all counties in the State. This was 16 less counties than reported the previous year. Eighteen new counties were reported in 1966 from North Dakota and South Carolina. This compares with 11 new counties in 1965, all in South Carolina; 5 new counties in 3 States in 1964, 25 new counties in 1963, 4 in 1962, 15 in 1961, and 6 in 1960.

Abundance: Generally, the abundance of European corn borer larvae decreased in those States reporting in 1967, although there was a slight increase in Wisconsin. Populations were less than half those of 1966 in 6 of the 11 North Central States included in the survey. Substantial decreases were noted in Iowa, Kansas, Missouri, Nebraska, Ohio, and South Dakota. Populations were lower in all districts surveyed in Iowa, Kansas, Missouri, and North Dakota. In South Dakota, an increase was noted in the northeast district where the 1967 average of 155 borers per 100 stalks is the highest count in this area for the past 5 years. The borer population in Hall County, Nebraska, was the lowest in 13 years. Populations in Wisconsin increased over 1966 in the northwest district and are sufficiently high that economic populations may occur in 1968. Populations were below 100 borers per plant in 66 of the 72 districts surveyed in the 11 North Central States. Populations above this level were found in southeast Missouri, southeast Iowa, northeast and north-central South Dakota, southeast North Dakota, and northwest Wisconsin. The population in Arkansas was much lower than in 1966, and lower in Maryland and Delaware than last year.

1/ Survey data provided by State agricultural agencies. Data compiled and summarized by Survey and Detection Operations, Plant Pest Control Division, Agricultural Research Service, United States Department of Agriculture.

Table 1. Summary by States of European Corn Borer Abundance in Corn, Fall of 1967, Compared with Data for 1966

	1966			1967			Comparable Districts or Counties Surveyed Both Years		
								Borers Per 100 Plants	
States	No. of Districts Surveyed	Average No. of Borers Per 100 Plants	No. of Counties Surveyed	No. of Districts Surveyed	Average No. of Borers Per 100 Plants	No. of Counties Surveyed	Number	1966	1967
Eastern									
Delaware	1	307	3	1	213	3	1	307	213
Maryland	3	185	13	3	140	13	3	185	140
Total	4		16	4		16			
Average1/								246	177
North Central									
Illinois	7	118	37	7	60	39	7	118	60
Indiana	12	44	92	12	35	92	12	44	35
Iowa	12	143	99	12	55	99	12	143	55
Kansas2/	3	129	24	3	44	27	3	129	41
Minnesota	7	56	34	7	53	34	7	56	53
Missouri	5	299	26	5	105	27	5	299	105
Nebraska	5	130	26	5	47	26	5	130	47
North Dakota	1	190	5	1	101	5	1	190	101
Ohio3/	5	39	33	5	17	33	5	39	17
South Dakota3/	6	146	35	6	78	35	6	146	78
Wisconsin	9	27	52	9	30	52	9	27	30
Total	72		463	72		469	72		
Average1/								120	57
Southern									
Arkansas	3	73	11	3	8	11	3	73	8
Others									
Michigan				1	44	15			
Vermont				1	21	13			

1/ Weighted average based on districts surveyed.

2/ Kansas figures for 1966 adjusted for comparison with 1967.

3/ Ohio and South Dakota based on districts surveyed.

Table 2 - European Corn Borer Abundance in Corn, Fall of 1967, Compared with Data for 1966

State (Districts or Counties)	Average Number of Borers Per 100 Plants	
	1966	1967
Arkansas (Ark. Ins. Sur.)		
Northwest	4	8
North Central	0	0
Northeast	215	17
Average	73	8
Delaware (Agr. Expt. Sta.)		
New Castle	126	203
Kent	437	208
Sussex	358	228
Average	307	213
Illinois (Natural History Survey, Ext. Ser.)		
Northwest	98	57
Northeast	47	32
West	249	99
Central	267	90
East	41	29
West-southwest	74	79
East-southeast	47	52
Average	118 (120) 1/	63 (63) 1/
Indiana (Ext. Ser., Expt. Sta.)		
North-northwest	60	80
North-northcentral	119	66
North-northeast	11	34
Northwest	33	13
North Central	24	8
Northeast	23	16
Southwest	26	42
South Central	21	26
Southeast	25	29
South-southwest	71	32
South-southcentral	61	53
South-southeast	59	25
Average	44	35
Iowa (State Dept. of Agr.; Ext. Ser.; Ent. Dept., Iowa State Univ.; ENT, ARS, USDA)		
District I	134	31
District II	94	20
District III	61	45
District IV	130	59
District V	114	50
District VI	49	35
District VII	152	31
District VIII	120	78
District IX	174	96
District X	142	34
District XI	194	74
District XII	351	107
Average	143	55
Kansas (Ins. Sur.)		
Northeast	274	64
North Central	31	39
East Central	81	30
Average	129 2/	44 2/
Maryland (Agr. Ext. Ser., Ins. Sur.)		
Eastern Shore	305	144
Southern area	121	161
Western and Central areas	129	115
Average	185	140
Michigan (Ins. Sur.)		
Surveyed Counties		44
(No survey conducted in 1966)		

1/ Average based on 37 counties surveyed in 1966 and 40 counties in 1967, rather than districts.

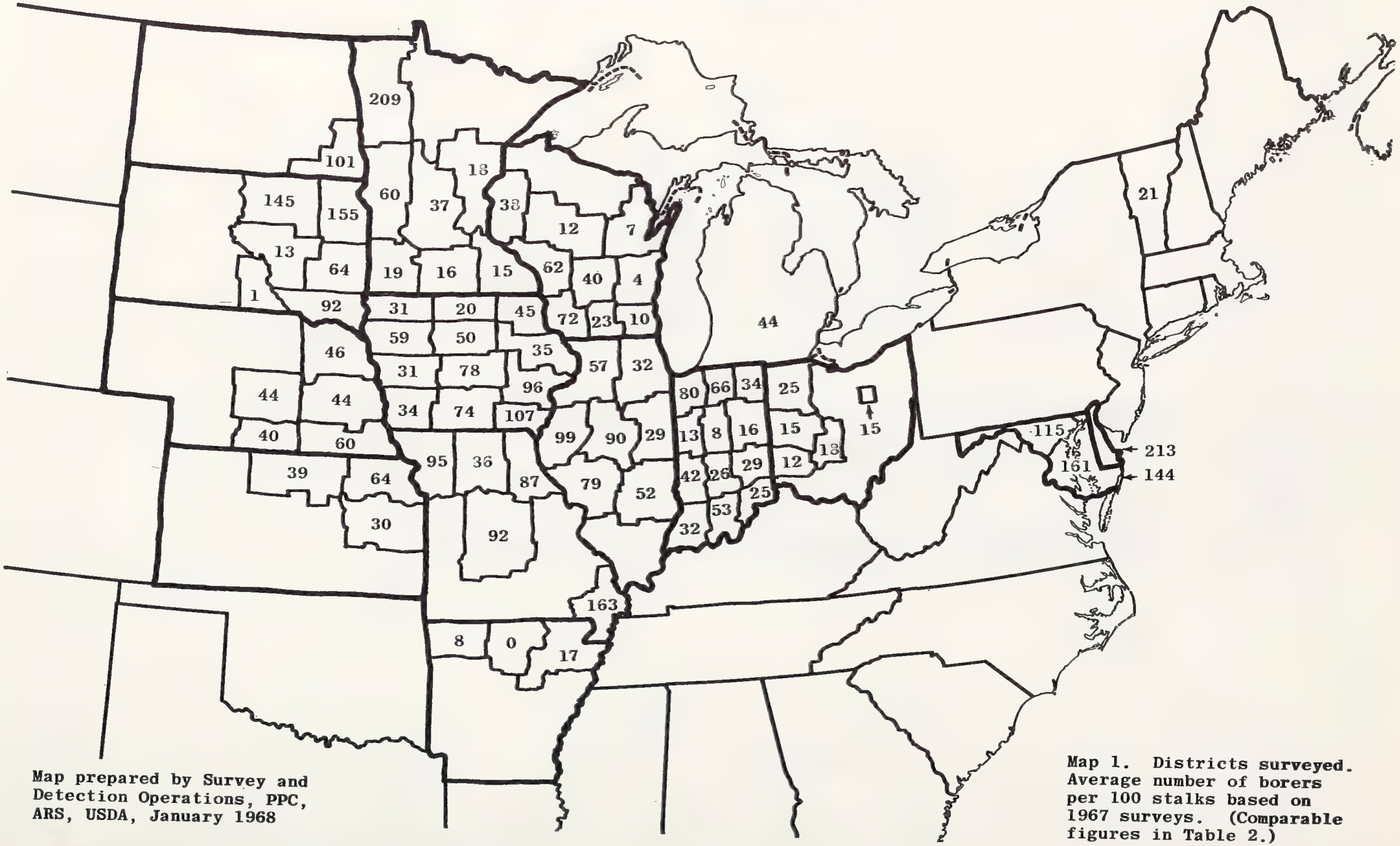
2/ Kansas figures for 1966 adjusted for comparison with 1967.

Table 2 - (Continued)

State (Districts or Counties)	Average Number of Borers Per 100 Plants 1966	1967	State (Districts or Counties)	Average Number of Borers Per 100 Plants 1966	1967
Minnesota			Ohio		
(State Dept. Agr.)			(Ext. Ser.; ARS, USDA		
Southwest	66	19	Northwest	55	25
South Central	51	16	West Central	34	15
Southeast	24	15	Central	23	18
West Central	56	60	Southwest	40	12
Central	26	37	Northeast	44	15
East Central	15	18			
Northwest	152	209	Average	39 (42)3/	17 (18)3/
Average	56	53			
			South Dakota		
Missouri			(Agr. Expt. Sta., Ext. Ser)		
(Ext. Ser., Ins. Sur.)					
			North Central	172	145
District I	369	95	Northeast	100	155
District II	310	86	Central	122	13
District III	381	87	East Central	259	64
District V	238	92	Southeast	214	92
District IX	199	163	South Central	9	1
Average	299	105	Average	146	78
Nebraska			Wisconsin		
(Agr. Expt. Sta., Ext. Ser., Ins. Sur.)			(State Dept. Agr.)		
			Northwest	9	38
Northeast	48	46	North Central	10	12
East	120	44	West Central	8	62
Southeast	210	60	Central	73	40
Central	233	44	Southwest	10	72
South	37	40	South Central	48	23
			Southeast	39	10
Average	130	47	East Central	24	4
			Northeast	18	7
North Dakota					
(State Dept. Agr.)			Average	27	30
Southeast	190	101			

3/ Averages based on all samples rather than district averages.

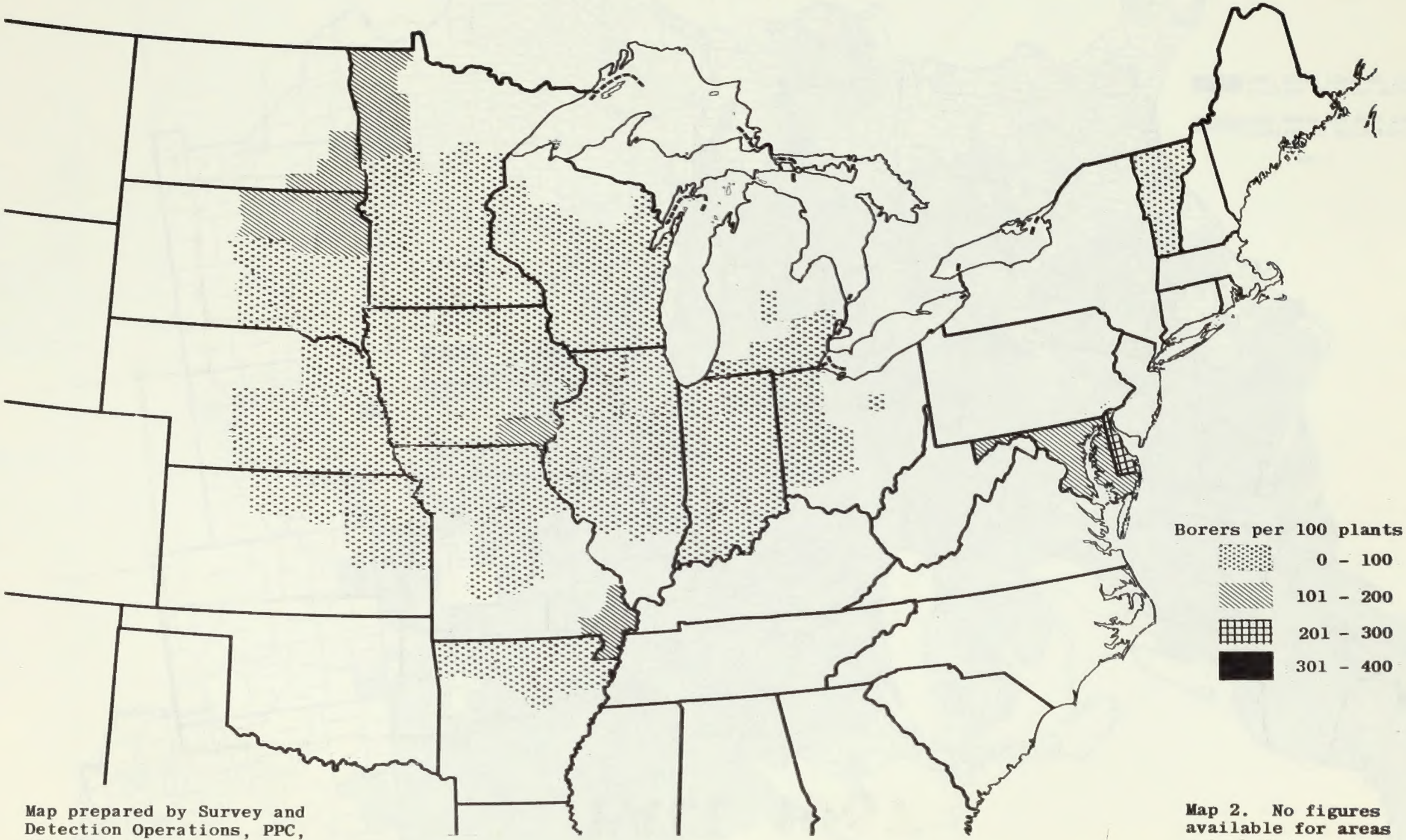
EUROPEAN CORN BORER ABUNDANCE
FALL 1967



Map prepared by Survey and Detection Operations, PPC, ARS, USDA, January 1968

Map 1. Districts surveyed. Average number of borers per 100 stalks based on 1967 surveys. (Comparable figures in Table 2.)

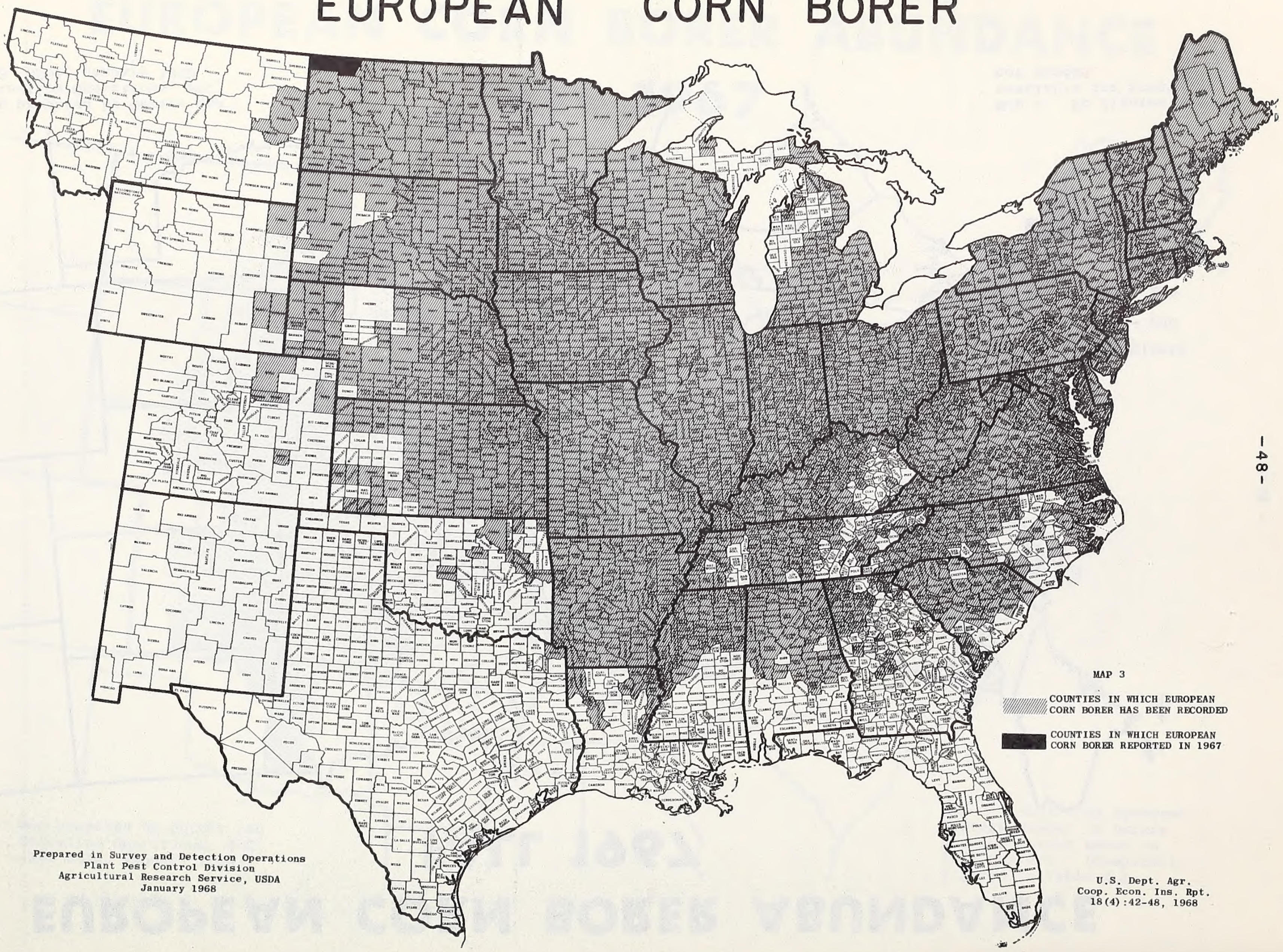
EUROPEAN CORN BORER ABUNDANCE
FALL 1967



Map prepared by Survey and
Detection Operations, PPC,
ARS, USDA, January 1968

Map 2. No figures available for areas not shaded.

EUROPEAN CORN BORER



MAP 3

▨ COUNTIES IN WHICH EUROPEAN CORN BORER HAS BEEN RECORDED

■ COUNTIES IN WHICH EUROPEAN CORN BORER REPORTED IN 1967

Prepared in Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service, USDA
January 1968

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
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